

AMENDMENTS TO THE CLAIMS

Listing of Claims:

Claims 1.-2. (Canceled)

Claim 3. (Currently amended) A microreactor according to claim [[2]] 8, having a heating element, extending over said semiconductor material region, on top of said buried channel.

Claim 4. (Original) A microreactor according to claim 3, wherein said heating element is embedded in said insulating region.

Claim 5. (Currently amended) A microreactor according to claim [[2]] 8, wherein said detection electrode extends on top of said insulating region.

Claim 6. (Currently amended) A microreactor according to claim [[1]] 8, wherein said semiconductor material region comprises a monocrystalline substrate and an epitaxial layer, superimposed on one another.

Claim 7. (Original) A microreactor according to claim 6, wherein said semiconductor material region has a cavity extending beneath said diaphragm, as far as said insulating region.

Claim 8. (Currently amended) An integrated microreactor, comprising: a monolithic body, having a semiconductor material region; a buried channel, extending inside said semiconductor material region; a first and a second access cavity, extending in said monolithic body, and in communication with said buried channel; a suspended diaphragm formed from said monolithic body, laterally to said buried channel; and a detection electrode, supported by said suspended diaphragm, wherein said monolithic body comprises an insulating region, superimposed to said semiconductor material region, and forming said suspended diaphragm, and A microreactor according to claim 2, wherein said monolithic body comprises a reservoir region, extending on top of said insulating region, and defines a first and a second reservoir, connected respectively to a first and a second trench, said first and a second trench extending through said insulating region and said semiconductor material region, as far as said buried channel, said second reservoir accommodating said detection electrode.

Claim 9. (Currently amended) An integrated microreactor, comprising: a monolithic body, having a semiconductor material region; a buried channel, extending inside said semiconductor material region; a first and a second access cavity, extending in said monolithic body, and in communication with said buried channel; a suspended diaphragm formed from said monolithic body, laterally to said buried channel; and a detection electrode, supported by said suspended diaphragm ~~A microreactor according to claim 1~~, wherein said semiconductor material region comprises a monocrystalline substrate, with a $\langle 110 \rangle$ crystallographic orientation, and wherein ~~that~~ said buried channel has a longitudinal direction that is substantially parallel to a crystallographic plane with a $\langle 111 \rangle$ orientation.

Claim 10. (Currently amended) A microreactor according to claim ~~[[1]]~~ 8, wherein said buried channel has a depth of up to 600-700 μm .

Claims 11.-22. (Canceled).

Claim 23. (Original) A structure comprising: a semiconductor material body; a buried channel formed in the semiconductor material body at a distance from a surface of the semiconductor material body; first and second trenches, formed on the semiconductor material body, extending from a top surface of the semiconductor material body to first and second ends, respectively, of the buried channel; a heating element, formed on the semiconductor material body above the buried channel; a suspended diaphragm, formed on the semiconductor material body and adjacent to the buried channel; and a sensing electrode structure, formed on the semiconductor material body above the suspended diaphragm.

Claim 24. (Original) The structure of claim 23, further comprising first and second reservoirs, formed on the surface of the semiconductor material body, wherein the first reservoir is above the first trench such that the first trench connects the first reservoir with the first end of the buried channel, and the second reservoir is above the second trench such that the second trench connects the second reservoir with the second end of the buried channel, and such that the second reservoir extends onto the suspended diaphragm, with the sensing electrode structure inside the second reservoir.

Claim 25. (Original) The structure of claim 24 wherein the first and second reservoirs are formed in, and defined by a resist layer formed on the surface of the semiconductor material body.

Claims 26.-33. (Canceled).